

The Largest U.S. Nuclear Testing Operation

On August 30, 1961, Premier Khrushchev announced that the Soviet Union would break the three-year moratorium and resume nuclear testing. Two days later, the Soviets started an unprecedented series of atmospheric tests, including the detonation of a 50-megaton device. Subsequently, President Kennedy decided that the nation must resume atmospheric nuclear testing, and he approved Operation Dominic—the largest U.S. nuclear testing operation ever conducted.

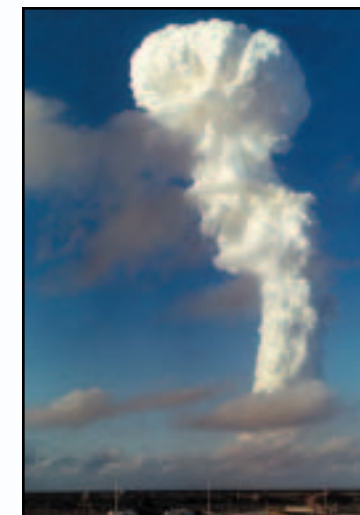
Thirty-six atmospheric tests were conducted at the Pacific Proving Grounds under Operation Dominic between April and November 1962. Approximately 28,000 military and civilian personnel participated in the test series, and more than 200,000 tons of supplies, construction materials, and diagnostics equipment were shipped or airlifted to the test areas. About 500 of the Laboratory's 4,700 employees participated in Operation Dominic. The Laboratory's Task Unit 8.1.2 was directed by Robert Goeckermann of Chemistry and Chuck Gilbert of Test Division.

Operation Dominic experiments proof-tested weapons introduced into the stockpile during the moratorium. The most dramatic experiment was Frigate Bird, in which the USS *Ethan Allen* launched a Polaris missile, and the Livermore-designed warhead successfully detonated over the open ocean. Most of the other tests were airbursts with the devices dropped by B-52 bombers. The data collected from these tests laid the groundwork for future Livermore designs of the Minuteman and Poseidon warheads, which were compact enough that numerous warheads could be carried by a single missile (see Year 1970).

Experiments were also carried out in 1962 to gather weapons effects data for the Department of Defense (DoD). For Operation Fishbowl (part of Operation Dominic), five Los Alamos-designed devices were lofted by Sandia-designed rockets and detonated at high altitude. Starfish Prime, for example, was a 1.4-megaton explosion at 400-kilometers altitude. Information was collected about the electromagnetic pulse phenomenon as well as other data related to ballistic missile defense systems (see Year 1966). Later

in the year, additional tests for DoD were performed at the Nevada Test Site. In Johnnie Boy and Danny Boy, Livermore-designed devices were used to study cratering effects. The collected data also helped to validate later fallout models developed at the Laboratory.

Operation Dominic was the last series of atmospheric nuclear weapon tests conducted by the United States. Signed in Moscow on August 5, 1963, the Limited Test Ban Treaty banned weapon tests in the atmosphere, in outer space, and underwater (see Year 1958).



In Livermore's Muskegon test in Operation Dominic, the nuclear device was air-dropped from a B-52 bomber near Christmas Island. The yield of the weapons-related experiment was in the range of 50 kilotons.



During Operation Dominic, diagnostic measurements were gathered aboard ships, and aircraft were used to collect debris samples.

The mushroom cloud from the Frigate Bird operational test of the Polaris missile and warhead was observed through the periscope of the USS *Carbonero*, which was stationed some 30 miles from ground zero.